

Claims

- [c1] A method for controlling an automotive vehicle comprising:
determining the vehicle is in a U-turn and generating a U-turn signal; and
applying brake-steer in response to the U-turn.
- [c2] A method as recited in claim 1 wherein applying brake-steer comprises applying at least one brake at a first wheel to reduce a vehicle turning radius.
- [c3] A method as recited in claim 1 wherein applying brake-steer comprises applying an increased drive torque to a second wheel relative to a first wheel.
- [c4] A method as recited in claim 1 applying brake-steer comprises increasing the normal load on a rear wheel.
- [c5] A method as recited in claim 1 applying brake-steer comprises increasing the normal load on a front wheel.
- [c6] A method as recited in claim 1 further comprising determining the vehicle is in a U-turn in response to a steering wheel direction.

- [c7] A method as recited in claim 1 wherein the steering wheel direction comprises an increasing direction and a decreasing direction wherein applying brake-steer comprises applying brake-steer using a first boost curve in the first direction, and applying brake-steer using a second boost curve in the second direction, wherein the first boost curve is different than the second boost curve.
- [c8] A method as recited in claim 7 wherein the first boost curve comprises a non-linear-boost curve.
- [c9] A method as recited in claim 7 wherein the first boost curve increases brake-steer at a first rate for a first period of time, increases brake-steer at a second rate for a second period of time wherein the second rate is greater than the first rate, and increases brake-steer at third rate for a third period of time wherein the third rate is less than the second rate.
- [c10] A method as recited in claim 7 wherein the second boost curve comprises a non-linear-boost curve.
- [c11] A method as recited in claim 7 wherein the second boost curve decreases brake-steer at a first rate for a first period of time, and decreases brake-steer at a second rate for a second period of time, wherein the second rate is less than the first rate.

- [c12] A method as recited in claim 1 wherein determining the vehicle is in a U-turn comprises determining the vehicle is in a U-turn in response to a steering wheel angle.
- [c13] A method as recited in claim 1 wherein determining the vehicle is in a U-turn comprises determining the vehicle is in a U-turn in response to a steering wheel angle and a vehicle speed.
- [c14] A method as recited in claim 1 wherein brake-steer is applied until the vehicle speed exceeds a U-turn speed threshold.
- [c15] A method as recited in claim 1 wherein determining the vehicle is in a U-turn comprises determining the vehicle is in a U-turn in response to a yaw rate.
- [c16] A method as recited in claim 1 wherein determining the vehicle is in a U-turn comprises determining the vehicle is in a U-turn in response to a yaw rate and a vehicle speed.
- [c17] A method as recited in claim 1 wherein determining the vehicle is in a U-turn comprises determining the vehicle is in a U-turn in response to a throttle position.
- [c18] A method as recited in claim 1 wherein determining the vehicle is in a U-turn comprises determining the ve-

hicle is in a U-turn in response to a steering wheel rate and steering wheel angle.

[c19] A method as recited in claim 1 wherein determining the vehicle is in a U-turn comprises determining the vehicle traveled straight followed by a sharp turn with an increasing vehicle speed and high steering wheel angle.

[c20] A system for controlling an automotive vehicle comprising:
means to generate a U-turn signal when the vehicle is in a U-turn; and
a controller coupled to said means, said controller programmed to apply brake-steer to the vehicle in response to the U-turn signal.

[c21] A system as recited in claim 20 wherein means to generate a U-turn signal comprises a vehicle velocity sensor and a steering wheel angle sensor.

[c22] A system as recited in claim 20 wherein means to generate a U-turn signal comprises a plurality of wheel speed sensors generating a plurality of wheel speeds.

[c23] A system as recited in claim 20 wherein means to generate a U-turn signal comprises a 25 yaw rate sensor.

[c24] A system as recited in claim 20 wherein means to gener-

ate a U-turn signal further comprises a vehicle velocity sensor.

[c25] A system as recited in claim 20 wherein means to generate a U-turn signal comprises a throttle position sensor and a yaw rate sensor.

[c26] vehicle has traveled turn with an increasing
A system as recited in claim 20 wherein means to generate a U-turn signal comprises means to determining the vehicle has traveled straight followed by a sharp turn with an increasing vehicle speed and high steering wheel angle.

[c27] A system as recited in claim 20 wherein said controller is programmed to brake-steer by applying a first brake and a second reduce the turning radius of the vehicle.

[c28] A system as recited in claim 20 wherein said controller is programmed to brake-steer by applying at least one brake at a first wheel to reduce a vehicle turning radius.

[c29] A system as recited in claim 20 wherein said controller is programmed to brake-steer by applying an increased drive torque to a second wheel relative to the first wheel.

[c30] A control system as recited in claim 20 further comprising a steering wheel angle sensor generating a steering

wheel angle signal, said controller programmed to apply brake-steer in response to the U-turn direction signal and the steering wheel angle signal.

[c31] A control system as recited in claim 20 further comprising a yaw rate sensor generating a yaw rate signal, said controller programmed to apply brake-steer in response to the U-turn direction signal and yaw rate signal.

[c32] A control system as recited in claim 20 further comprising a steering wheel torque sensor generating a steering torque signal, said controller programmed to apply brake-steer in response to the U-turn direction signal and steering torque signal.

[c33] A control system as recited in claim 20 further comprising a steering wheel angle sensor generating a steering wheel angle signal and a vehicle velocity sensor generating a vehicle velocity signal, said controller programmed to apply brake-steer in response to the U-turn direction signal and steering wheel angle and vehicle velocity signal.